

Table 29. Cement Industry Energy Consumption

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Value of Shipments (billion 2000 dollars)	7.55	7.75	7.92	8.31	8.70	8.73	8.76	8.84	8.98	9.02	9.03	9.07	9.14	9.24
Energy Consumption (trillion Btu) 1/														
Residual Oil	1.1	1.1	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Distillate Oil	15.1	8.0	8.6	8.4	8.4	8.3	8.3	8.3	8.1	8.1	8.1	8.1	8.0	8.0
Petroleum Coke	55.4	56.2	56.7	58.5	60.4	60.1	59.9	59.9	60.3	60.1	59.8	59.6	59.7	59.8
Other Petroleum 2/	35.3	35.8	36.1	37.3	38.5	38.4	38.2	38.2	38.5	38.4	38.1	38.0	38.1	38.2
Petroleum Subtotal	106.8	101.0	102.3	105.1	108.4	107.9	107.5	107.6	108.0	107.8	107.2	106.9	106.9	107.2
Natural Gas	22.4	22.4	22.0	23.4	24.4	24.5	24.6	24.8	25.2	25.3	25.3	25.4	25.6	25.9
Steam Coal	239.7	250.6	253.7	261.8	270.0	269.4	268.8	269.4	271.4	271.3	270.4	270.3	270.9	272.2
Metallurgical Coal	7.9	8.1	8.2	8.4	8.7	8.7	8.7	8.7	8.8	8.8	8.7	8.7	8.7	8.8
Coal Subtotal	247.7	258.6	261.8	270.2	278.7	278.1	277.5	278.1	280.1	280.1	279.1	279.0	279.6	280.9
Purchased Electricity	44.0	45.2	46.2	48.1	50.0	50.0	49.9	50.2	50.8	50.9	50.8	50.8	51.0	51.4
Total	420.9	427.4	432.3	446.8	461.5	460.5	459.5	460.7	464.2	464.0	462.4	462.2	463.1	465.4
Energy Consumption per Unit of Output (thousand Btu per 2000 dollar shipments)														
Residual Oil	0.15	0.14	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12
Distillate Oil	2.00	1.03	1.08	1.01	0.97	0.95	0.94	0.94	0.91	0.90	0.90	0.89	0.88	0.87
Petroleum Coke	7.33	7.24	7.15	7.04	6.94	6.88	6.83	6.78	6.72	6.67	6.62	6.57	6.52	6.47
Other Petroleum 2/	4.68	4.62	4.56	4.49	4.43	4.39	4.36	4.32	4.28	4.25	4.22	4.19	4.16	4.13
Petroleum Subtotal	14.15	13.03	12.92	12.65	12.46	12.35	12.26	12.16	12.04	11.95	11.87	11.79	11.69	11.59
Natural Gas	2.97	2.89	2.78	2.81	2.80	2.81	2.81	2.81	2.81	2.80	2.80	2.79	2.80	2.80
Steam Coal	31.75	32.31	32.03	31.51	31.03	30.85	30.67	30.46	30.23	30.07	29.94	29.79	29.62	29.44
Metallurgical Coal	1.05	1.04	1.03	1.02	1.00	1.00	0.99	0.98	0.98	0.97	0.97	0.96	0.95	0.95
Coal Subtotal	32.80	33.35	33.06	32.53	32.04	31.84	31.66	31.45	31.21	31.04	30.90	30.75	30.57	30.39
Purchased Electricity	5.83	5.83	5.84	5.79	5.75	5.72	5.70	5.67	5.66	5.64	5.62	5.60	5.58	5.56
Total	55.74	55.11	54.59	53.78	53.05	52.73	52.43	52.09	51.71	51.43	51.19	50.93	50.64	50.34
Carbon Dioxide Emissions 3/ (million metric tons)	39.3	40.1	40.6	41.9	43.3	43.2	43.1	43.2	43.5	43.5	43.3	43.2	43.3	43.4
Combined Heat and Power 4/ Generating Capacity (gigawatts)														
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04
Coal	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Other 5/	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Net Generation (billion kilowatthours)														
Petroleum	0.20	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Natural Gas	0.05	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16
Coal	0.26	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Other 5/	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.55	0.51	0.51	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63
Disposition														
Sales to the Grid	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Generation for Own Use	0.50	0.47	0.47	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.55	0.56	0.58	0.59

Table 29. Cement Industry Energy Consumption

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2004-2030
Value of Shipments (billion 2000 dollars)	9.36	9.44	9.50	9.55	9.59	9.65	9.72	9.81	9.88	10.00	10.10	10.19	10.29	10.37	1.1%
Energy Consumption (trillion Btu) 1/															
Residual Oil	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	0.3%
Distillate Oil	8.1	8.1	8.2	8.1	8.1	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.3	8.4	0.2%
Petroleum Coke	60.1	60.2	60.4	60.3	60.3	60.4	60.6	60.7	60.8	61.1	61.3	61.5	61.8	62.0	0.4%
Other Petroleum 2/	38.3	38.4	38.5	38.5	38.5	38.5	38.6	38.7	38.8	38.9	39.1	39.2	39.4	39.5	0.4%
Petroleum Subtotal	107.6	107.8	108.2	108.0	108.1	108.2	108.5	108.7	108.8	109.3	109.7	110.1	110.7	111.0	0.4%
Natural Gas	26.1	26.2	26.3	26.5	26.6	26.7	27.0	27.2	27.4	27.7	27.9	28.2	28.4	28.6	0.9%
Steam Coal	273.8	274.8	275.3	275.3	275.2	275.7	276.3	277.3	278.2	279.9	281.5	283.2	285.0	286.5	0.5%
Metallurgical Coal	8.8	8.9	8.9	8.9	8.9	8.9	8.9	8.9	9.0	9.0	9.1	9.2	9.2	9.3	0.5%
Coal Subtotal	282.6	283.6	284.1	284.2	284.1	284.5	285.2	286.3	287.2	288.9	290.7	292.4	294.2	295.8	0.5%
Purchased Electricity	51.9	52.2	52.4	52.5	52.6	52.8	53.1	53.4	53.7	54.2	54.7	55.1	55.6	55.9	0.8%
Total	468.2	469.9	471.0	471.2	471.3	472.3	473.7	475.5	477.1	480.1	483.0	485.8	488.8	491.3	0.5%
Energy Consumption per Unit of Output (thousand Btu per 2000 dollar shipments)															
Residual Oil	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	-0.9%
Distillate Oil	0.87	0.86	0.86	0.85	0.85	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	-0.9%
Petroleum Coke	6.42	6.38	6.35	6.31	6.29	6.26	6.23	6.19	6.15	6.11	6.07	6.03	6.00	5.97	-0.7%
Other Petroleum 2/	4.10	4.07	4.05	4.03	4.01	3.99	3.97	3.95	3.92	3.89	3.87	3.85	3.83	3.81	-0.7%
Petroleum Subtotal	11.50	11.42	11.38	11.31	11.27	11.22	11.16	11.08	11.01	10.93	10.86	10.80	10.75	10.70	-0.8%
Natural Gas	2.79	2.78	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.76	2.76	2.76	-0.2%
Steam Coal	29.26	29.10	28.96	28.83	28.70	28.57	28.43	28.28	28.14	28.00	27.88	27.78	27.70	27.62	-0.6%
Metallurgical Coal	0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.90	-0.6%
Coal Subtotal	30.20	30.04	29.89	29.76	29.63	29.49	29.34	29.19	29.05	28.91	28.78	28.68	28.59	28.51	-0.6%
Purchased Electricity	5.55	5.53	5.52	5.50	5.49	5.47	5.46	5.45	5.43	5.42	5.41	5.41	5.40	5.39	-0.3%
Total	50.04	49.77	49.56	49.34	49.16	48.95	48.73	48.49	48.26	48.03	47.82	47.66	47.51	47.36	-0.6%
Carbon Dioxide Emissions 3/ (million metric tons)	43.7	43.9	44.0	44.0	44.0	44.1	44.2	44.4	44.6	44.9	45.2	45.5	45.8	46.1	0.5%
Combined Heat and Power 4/ Generating Capacity (gigawatts)															
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Natural Gas	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	4.3%
Coal	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	N/A
Other 5/	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Total	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.15	1.2%
Net Generation (billion kilowatthours)															
Petroleum	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	N/A
Natural Gas	0.17	0.18	0.20	0.21	0.22	0.23	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	8.2%
Coal	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	N/A
Other 5/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Total	0.64	0.65	0.66	0.68	0.69	0.70	0.71	0.72	0.74	0.75	0.76	0.77	0.78	0.79	1.7%
Disposition															
Sales to the Grid	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	N/A
Generation for Own Use	0.60	0.61	0.62	0.63	0.65	0.66	0.67	0.68	0.70	0.71	0.72	0.73	0.74	0.75	1.8%

Table 29. Cement Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes petroleum coke, lubricants, and miscellaneous petroleum products.

3/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2004 are model results and may differ slightly from official EIA data reports.

Source: 2003 and 2004 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2002 (preliminary). Other 2003 and 2004 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2006 National Energy Modeling System run aeo2006.d111905a.